

Explication on Etiology of Autism Spectrum Disorder (ASD) According To Siddha System of Disease Origin

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Abstract: Autism spectrum disorder (ASD), commonly known as mandhasanni in Siddha terminology. ASD manifests in early childhood characterized by group of conditions with deficits in social interaction and communication along with repetitive behavior interests and activities. About 1 in 59 children has been identified with ASD according to CDC's Autism and Developmental Disabilities Monitoring (ADDM) Network. ASD is about 4 times more common among boys than girls. The prevalence has been increased in recent years which need research focusing on understanding the etiology of ASD. ASD makes life challenging for the entire family as the children are dependent on activities of day-to-day life. There is wide range of symptoms which makes globally access to services and support for children with ASD. Siddha system is a traditional system of medicine which has strategic principle on diseases of origin. The main aim of this observational study is to rule out etiological factors of ASD according to siddha literatures which would be useful for future generation to reduce prevalence of ASD. Investigation conducted on parents of 30 clinically diagnosed ASD children of age 3 to 12 years. Result clearly states that 33.33% of study population taking Junk foods which exist more, Family issues contributing to psychological stress during gestation and feeding period of mother is 46.67%. About 80% of study population has history of coitus during feeding period which plays vital role in the study. Further 43.33% of parents were giving Formula milk to the children's, care of parents is about 53.33% good enough, 76.67% of children's had frequent constipation, 90% of them had no pre-peri-post natal problems. Siddha system has a classical approach to diseases of origin. In conclusion this study reveals an ideal strategy on understanding on etiology of Autism Spectrum Disorder according to siddha literature which provokes everywoman to be exposed to the basic aspects of siddha medicine to reduce the prevalence of disease.

Keywords: Autism spectrum disorder, Siddha system, Etiology, Mandhasanni, Mandham,

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I. Introduction:

Autism Spectrum Disorder (ASD) is a developmental disorder characterized by three major features impaired social interaction, impaired communication and impaired imagination. It is a complex disability appearing in first 3 years of life. It is a sort of poorly understood psychosis in which the child is highly withdrawn and seemingly living isolated, communication problems, sameness in routine. In addition there may be mental retardation, seizures or learning disabilities [1]. About 1 in 59 children has been identified with ASD according to CDC's Autism and Developmental Disabilities Monitoring (ADDM) Network. ASD is about 4 times more common among boys than girls [2]. It is challenging for the entire family as the children's are dependent on activities of day-to-day life. Although many theories and investigations have been recommended to find out the cause for ASD, it's still inconclusive.

Autism Spectrum Disorder is known as *Mandha sann* according to siddha literature *Balavagadam* [3]. For *mandha sann*, *mandham* is the root cause of the disease. According to *T.V.Sambasivampillai*, Tamil-English agarathi *Maanthanoi (mandham)*, a disease in children caused by the fermentation of acids in the stomach-zymotic diseases. It is classified into 21 different kinds by siddhars, but some have added more and named them after predominant symptom observed [4]. *Mandham* is not only in the physical body (digestive system) but also in the four intellectual faculties (*Anthakaaram*) [3]. The causes of *mandha sann* according to siddha literature

Annamumpaalumneiyumadaivilapazhamumvithum

Pinnaiyum payaruthenkaiperiyathorekathalikaayum

Thinnavaekaalkulirnthutheeyenavethupankandal

Unnunarbaalagarkumandhammutridumendrarae

Annaimuzhaipaalu duathanmelavinpaalai

Unnilvayitrinuraiseetham-pinnai
Thiranduperunthiraiyamseyilayeerkaelir
Marunduulaiyumnaalumvayiru

Annaimulaiyalaraikeeraiyaevirumbi
Unna mulaipaalkuzhaviundakkal-china
Seethaimutripuzhuvaisirangupatrum
Vegamainirkumvithi[5]

The etiology of the disease is well explained by Siddhars taking into consideration all aspects of disease. *Mandham* develops from first year to third year followed by *ganam* which prolongs and perpetuates the life of child even upto sixteen years [6].Pregnancy is the programming period of future condition,so it is considered as important.According to developmental origins of health and disease hypothesis,most disease that occurs in adulthood originates in foetal life [7].Child care actually starts long before the child appears as an individual in world. It starts when it is formed in mother's womb and is not yet a viable entity [8]. The food the mother consumes, the work she does, the hygiene she maintains-all contribute towards the wellbeing of the growing foetus[9].Treatment to be given each month during pregnancy will maintain the mother's health and child will be born disease-free. According to siddha,*Aathmaratchamirtham*gives a detailed description of the illnesses a woman will encounter with regard to her pregnancy and treatment for it [10][11][12][13].Siddha system is a traditional system of medicine has strategic principle on diseases of origin [14].According to siddha literature the integrative field of studying the habits,diet,and psychological stress in gestation and feeding period of mother,care of parents in child rearing, administration of foods,Gastro intestinal problems of child are having huge impact on understanding etiology of ASD. Hence knowledge about the etiology of ASD provides guide for prevention of the disease. The main aim of this observational study is to rule out causal factors of ASD according to Siddha literature which would be useful for future generation to reduce prevalence of ASD.

II. Materials And Methods:

Cross sectional observational study comprises of 30 clinically diagnosed ASD children of age 3 to 12 years who are attending out-patient department of Ayodhidoss Pandithar Siddha Hospital at National Institute of Siddha, Tambaram Sanatorium, Chennai-47,Tamilnadu,India. The parents of children with ASD are interviewedbased on questionnaire pattern which are divided into sections according to that includes dietary habituation, Psychological stress of mother during gestation and feeding period, History of coitus during feeding period,administration of foods other than breast feeding, Care of parents, Gastrointestinal problems of child from birth to 3 years and pre-peri-post natal problems of mother. This study was conducted after getting IEC approval NIS/IEC/142018-19/13-20.09.18 and the trial was registered in CTRI, CTRI No: CTRI/2019/12/022286

III. Results:

3.1. Dietary Habituation of Mother during feeding Period

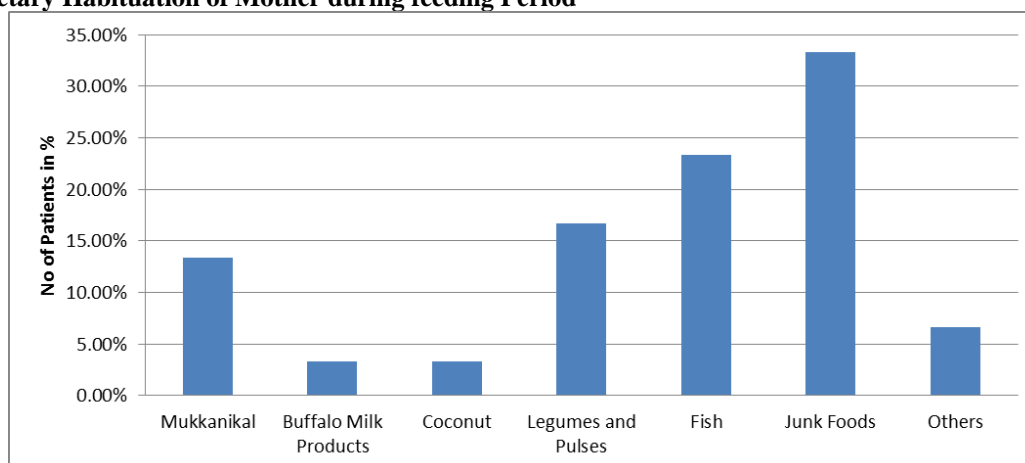


Figure1: Dietary Habituation of Mother during feeding Period

In study population about 13.33% of them were taking mukkanikal (Mango,Jackfruit,Banana) periodically, 3.33% taking buffalo milk products, 3.33% coconut,16.67% legumes and pulses, 23.33% of fish, 33.33% of Junk foods,6.67%other foods periodically.

3.2. Psychological Stress of Mother during Gestation and feeding period



Figure 2: Psychological Stress of Mother during Gestation and feeding period

It was observed from the study about 26.67% are subjected to occupational stress and Household chores, Family issues contributing to 46.67%.

3.3. History of Coitus during feeding period

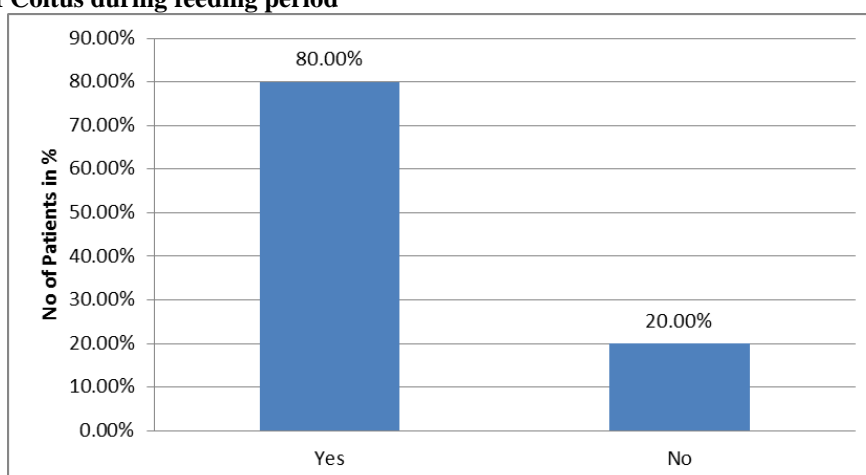


Figure 3: History of Coitus during feeding period

Among study population 80% of them had coitus and 20% of them had no coitus during feeding period

3.4. Administration of Foods Other than Feeding

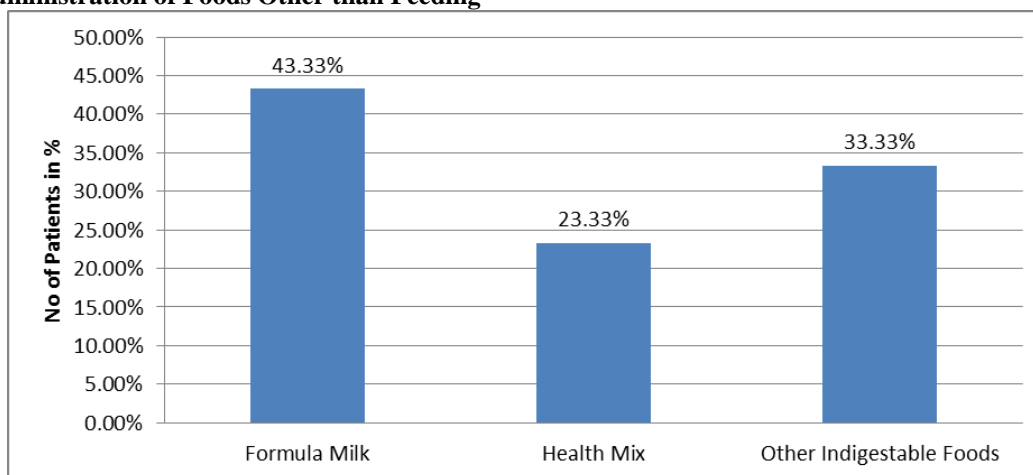


Figure 4: Administration of Foods Other than Feeding

Among study population 43.33% of parents were giving Formula milk, 23.33% were giving health mix and 33.33% giving other indigestible foods from 0 to 3 years of life their child.

3.5. Care of Parents

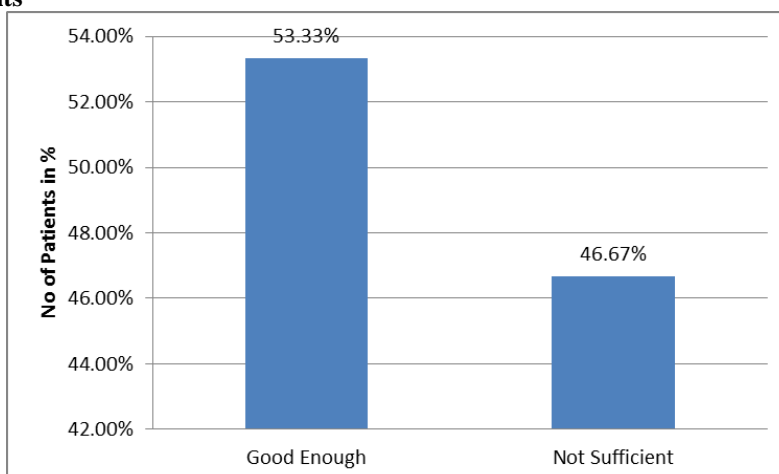


Figure 5: Care of Parents

In this it is observed that care of parents in child rearing was found to be 53.33% good enough and 46.67% was not sufficient.

3.6. GastroIntestinal Problems of Child from 1 to 3 years

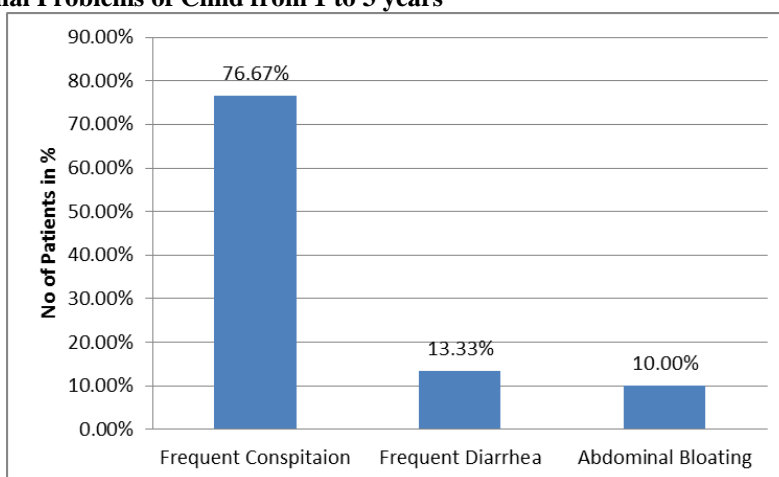


Figure 6: Gastrointestinal Problems of Child from 1 to 3 years

Among children's of ASD 76.67% of them had frequent constipation, 13.33% had frequent diarrhoea and 10% had gastrointestinal problems.

3.7. Pre-Peri-Post Natal Problems

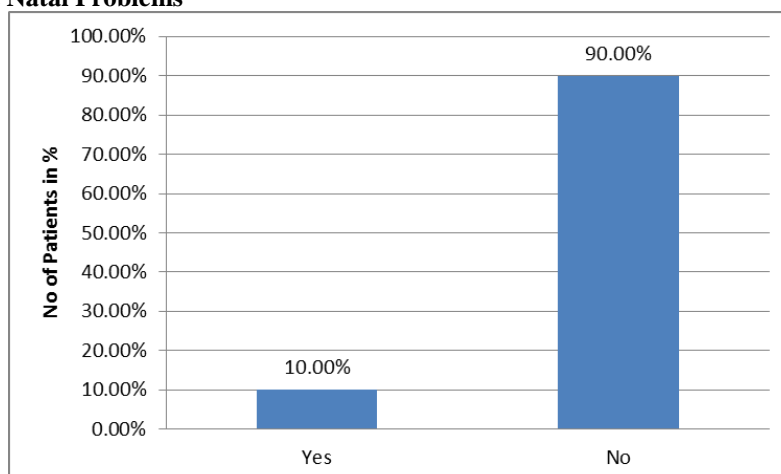


Figure 7: Pre-Peri-Post Natal Problems

In study population 90% of them had no pre-peri –post natal problems of and 10% had problem.

IV. Discussion:

According to Siddha literature *Balavagadam*, diseases of origin has been due to intrinsic and extrinsic factors Intrinsic factors (In-utero)- important in them are Grandhi, thodam, *Mandham*, Ganam,Karrapan, Akkaram and Varmam(impact ailments).

Extrinsic factors-Factors influencing afterbirth with any of the clinicalfeatures likeirritable cry, Hiccough, abdominal distention, Vomiting of feeds, yawning, refusing feeds, abdominal colic, constipation, retention of urine and thodam. Hence *mandham* develops in-utero and it is continued by factors influencing after birth [3][15].

The diet and behavior followed by mother during gestation contributes to intrinsic factors and during feeding period contributes to extrinsic factors.The diet is the crucial influencer of maternal health of women. For healthy baby maternal dietary restriction is followed in traditional systems,also during feeding period for mother.[16]There are varieties of foods in creation which compensate some quality of one product by another in a differentone.It also preserved the balance in created life by making one the enemy of the other [17]. The broad principles of dietetics have been mentioned in various siddha literature which is to be followed during gestation and feeding period for mother [18][9]. These foods are mainly focused which are preferable for digestion .The reasons for child getting *mandham* are that mother eats all diet without any restrictions which is proved in the study that about 33.3% of taking Junk foods and 23.33% taking fish in increased frequency and quantity. The influence of these indigestible foods affects child health through breast feeding. So the child develops *mandham*(Indigestion)[15]. Indigestion is the main problem in children up to the age of a year.

The percentage of history of coitus during feeding period among parents of ASD patients ranges high in this study which is about 80%.According to *Aathmaratchamirtham*when the mother enters sexual contact with male and feeds the baby,the mothers heat is transmitted to the baby by her milk. This milk is indigestible and causes*mandham*. It is a serious disease and the child has to be attended to in time[19]. Hence the cause mentioned in the siddha literature has been proved in this study.

Among ASD patients more studies have indicated high prevalence of Gastro intestinal problems such as abdominal pain, constipation,Vomiting, diarrhea and gastro esophageal reflux disease[20] [21] [22] [23]In this study also it is proved that about76.67% of them had frequent constipation,13.33% had frequent diarrhea and 10% had gastrointestinal problems(*mandham*). Another risk factor for GI problemsis administration of other foods like Formula milk contributes to 43.33%, health mix 23.33%, and other foods 33.33% in this study.These foods arenot preferable for infants rather than exclusive breast feeding up to 6 months.

According to this study 26.67% are subjected to occupational stress and Household chores, Family issues contributing to46.67%. Nowadays mothers are subjected to stress due to many reasons and it also a risk factor for child getting *mandham* which affects four intellectual faculties like

1. *Manam*- That which thinks
2. *Buddhi*-That which enquires(knowledge)
- 3.*Siddham*(Determination)-to complete what has been thought and enquired
4. *Aganathi,Munaippu*- Pride-Achievement - Thinking of one thing, enquiring it and then stick to it.

Hence children's with autism fails to think, enquiring and complete in action what is thought [24][25][26]. During breast feeding the mother should be at ease and in peace as the baby's characteristics are based on the mother's feelings and temper[27].

Several studies investigated relationship between prenatal, perinatal and post natal factors and autism [28]. Although there are maternal /parental age ,short gestation age ,gestational hypertension, threatened abortion, caesarian delivery prematurity, Low birth weight and Low Apgar score there is no single factor which is reported positive for autism [29]. The present study showed 90% of had no pre-peri-post natal problems and only 10% had risk factors. Hence the other cofactors from intrinsic and extrinsic may be reason for child getting autism

In this study care of parents in child rearing is good enough about 53.33%. But still then the people to whom child moves should be lovable and accommodative. It should not be threatened; and forced to do anything. On no account, should they lose temper, exert compulsion, show irritation on the child, as it would affect them psychologically [30]. In siddha medicine child care has been considered so important that it is classified into branches depending on age of the child called *paruvangal*. These stages are *kappuparuvam*, *Muthaparuvam*, *Tallaparuvam*, *Sappaniparuvam*, *Varugaiparuvam*. Each of these stages has their diseases and treatments prescribed for them [31] *Mandha sann* occurs in *Muthaparuvam*, *Tallaparuvam*, *Sappaniparuvam*, *Varugaiparuvam*. Hence knowledge about the paruvangal gives ideas about stages of children and their diseases.

V. Conclusion:

Autism spectrum disorder is emerging as a challenging disease as it remains as major healthcare burden. It is mandatory to find out the etiology of the disease to reduce its prevalence. Present study clearly indicates according to siddha system of medicine, indigestion is a main problem for children with Autism Spectrum Disorder. Due to defects in mother's breast milk, body heat of the child, bad effects of eatables and psychological stress of mother the child gets *mandham*. It is advisable to avoid coitus after the woman becomes pregnant and also during feeding period. Otherwise it indiscriminately leads to birth of an unhealthy baby. Every woman should therefore be exposed to the basic aspects of siddha medicines which has systematic approach towards understanding human health and its relation to food, work, regimen, environment and climate. Autism spectrum disorder can be prevented by maintaining a , maternal dietary restrictions hygienic environment for the child, personal hygiene of the mother and child stress free.

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